



Maryland Department of Environment
Water and Science Administration
Compliance Program
1800 Washington Blvd, Suite 420
Baltimore, MD 21230-1719
410- 537-3510, 1-800-633-6101

Inspector: Ronald Wicks
AI ID: 8449

Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224
County: Baltimore County

Start Date/Time: September 27, 2022, 09:04 AM
End Date /Time: October 20, 2022, 11:05 AM

Complaint Number: 28368
Media Type(s): NPDES Municipal Major Surface Water

Contact(s):
Ronald Turner
Betty Jacobs
Charmayne
Payton
Dana Garris

NPDES Municipal Major Surface Water

Permit / Approval Numbers: 15DP0581
NPDES Numbers: MD0021555
Inspection Reason: Follow-up (Non-Compliance)
Site Status: Active
Compliance Status: Noncompliance
Site Condition: Noncompliance
Recommended Action: Refer to Others (See Findings)
Evidence Collected: Photos or Videos Taken, Visual Observation
Delivery Method: Email
Weather: Dry Average

Inspection Findings:

The Back River Wastewater Treatment Plant (WWTP) is an activated sludge process sewage treatment plant with biological nutrient removal by Modified Ludzack-Ettinger process, ferric chloride for phosphorus removal, denitrification filters for enhance nutrient removal, sand filters, chlorination, and dechlorination. The flow is split at a junction box and the larger portion of the flow goes to Outfall 001 into the Back River via cascading outfall and the remaining portion of about 20 million gallons per day (MGD) goes to Outfall 002, which is further chlorinated and discharged to Bear Creek/Patapsco River via Tradepoint Atlantic.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

The facility's activity code or standard industrial classification is 4952 and the North American Industry Classification System is 2213. Outfall 001, which discharges into Back River, and Outfall 002, which discharges into Bear Creek and the Patapsco River, are both protected for Use II. Use II includes water contact recreation and the protection of aquatic life.

On 9/27/2022, I (Ronald Wicks) met Ronald Turner, Betty Jacobs, Rayford McEachern, Charmayne Payton and Dana Garris representing the Back River WWTP for an announced inspection pursuant to State permit #15-DP-0581 (National Pollutant Discharge Elimination System (NPDES) MD0021555), Back River WWTP.

During a preliminary meeting with Turner, I discussed my plans and what I intended to accomplish on this date. My primary goal was to evaluate and determine progress made since the last monthly inspection with regards to the following treatment areas:

- Headworks (fine and coarse screening and grit removal system)
- Primary settling tanks (PST)
- Biological reactors
- Secondary clarifiers
- Denitrification filters (DNF)
- Sand filters
- Chlorine contact chambers (CCC)
- Staffing
- Solids Management

Headworks

There have been complications with ventilation and the biological wet odor scrubber system in the headworks building that prevented satisfactory control and removal of hydrogen sulfide (H₂S). Due to the lack of removal, H₂S has corroded the silver and copper circuit parts. The ambient concentration of H₂S in the headworks building affected electrical conductors and current carrying parts. An independent contractor, ProStart, is currently managing the headworks. In a letter sent on 9/6/2022, Baltimore City Department of Public Works (City or DPW) informed the Maryland Department of Environment (MDE or the Department) that the "building air was balanced approximately 9 months ago and ventilation is no longer of issue. All circuits which failed or were in question due to H₂S exposure have been replaced. Additionally, the scrubber system has been started, seeded, and is in commissioning phase. The scrubber system will provide further reduction/impact to the control systems from H₂S." **The City has not provided to the Department data such as H₂S air monitoring data, work orders, or other maintenance records to confirm the above statements.** During the 8/16 inspection, I found that ProStart was using the non-potable plant flushing water for the air scrubbers. This is still the case at this time and according to ProStart, the potable water line will be completed and installed soon.

I continued with an inspection of the headworks accompanied by Payton who is assigned to the primary treatment area. There we met one of the operators from ProStart. The first stop was in the control room where the status of all systems can be monitored.



8/27/22 Headworks Control Room

Sewage enters the plant at the mechanical screen building where there are four coarse screening units. There was one unit in service during this inspection. According to the ProStart operator, only one coarse screening unit is needed for the current flow. The coarse screened sewage flows from the coarse screens to the deep wet wells. There are two deep wet wells that are over 50 feet deep that receive wastewater from the Coarse Screening units. Wastewater travels from the deep wet wells through suction pipes that draw water into the Headworks Influent Pumping Station. The influent headworks pump station has eight lift pumps. The lift pumps are used to pump the screened sewage from the wet wells to the fine screening system. During this inspection, two of the lift pumps were being used. **During an inspection of the coarse screen system, I inspected the inside of the functioning unit where I observed that there was an excessive amount of rags and trash coiled around the racks.** According to the ProStart operator, the cutter was not functioning, and the coarse screening units have not been cleaned since the last rain event. He further stated that each coarse screen has a 2000 lb. weight capacity and once that weight is reached, the unit trips off and another coarse screen unit will come on. The coarse screens should be routinely cleaned and as soon as possible after rain events. The screening equipment should be properly maintained and repaired to protect the downstream equipment by capturing and removing floating debris. Routine maintenance can dramatically improve water and wastewater treatment plant system processes while preventing and minimizing potential problems with clogging and other maintenance issues downstream due to trash and debris. Before I left the area, I observed that the rags were being removed from the coarse screening units. The Back River WWTP should ensure that the coarse screens are maintained satisfactorily and repaired as required.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Inside of one of the coarse screening units.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Inside of one of the coarse screening units.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 The coarse screening units are being cleaned during the inspection.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Picture shows Pumps #1-4. Today, 2 were being used for the headworks operation. Pumps #1- #4 have pumping capacities of 100 MGD each and pumps #5 - #8 (not shown) have pumping capacities of 120 MGD each.

The headworks is equipped with six fine screening units with a processing flow rate of up to 100 MGD. During this inspection, all six units were online, but I noticed that the fine screening unit that I was inspecting was not operating. According to the ProStart operator, the operation of the fine screening unit is based on the differential pressure. Once the flow rate increased, the unit would come back online. After checking the other units, I found that none of the six fine screening units were receiving flow. According to the operator, the fine screening units are triggered to come on based on the water level in the influent channel. An infrared water level detector tracks the water level, and the fine screens operation is triggered on and off by the water level in the channel. The fine screened sewage then travels to the grit removal system.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



8/27/22 Fine screening unit.

Traveling bridges remove grit from the waste stream, and this is done at the rectangular tanks. The bridges travel back and forth using submersible pump/suction plate systems, that continuously removes settled grit from the tanks and transfers the grit to the grit dewatering processes consisting of spinning classifiers. The classified grit is dried and then sent off-site for disposal. The sewage flows from the grit removal system to a junction box and then to the PSTs.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Grit collection area at the traveling bridges.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



8/27/22 Grit processing area.

Before leaving the headworks, I was able to meet with Bill Farrell, ProStart Manager, to discuss the status of the air scrubber system and the H₂S issues at the headworks. According to Farrell, they have been using the flushing water from the WWTP non-potable water supply and adding concentrated nutrients to the air scrubber system. I asked Farrell if potable water was now available for use in the scrubber system and he told me that the potable water line would be ready soon, but he did not have a specific timeframe as yet. **He could not provide me with any H₂S monitoring data. According to Farrell, the H₂S sensors are not working and have to be replaced due to the problem with corrosion in the building.**

PST

Next, I inspected the PSTs accompanied by Payton. During this evaluation, there were three functioning PSTs (#1, #8 and #11) out of the 11 PSTs at the site. PST#7 is being refurbished by the Maryland Environmental Services (MES) and is scheduled to be the next PST to come online sometime in mid-November. The contractor is still working on the skimmer arm and there are still electrical issues that must be resolved before it can be put back into service. PSTs #8 and #11 were

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

both functioning, and the skimmers were all operating. During previous inspections, I have observed that the scum collection troughs have been clogged with scum and floating solids preventing satisfactory skimming operation and collection of scum. Today, I found that the troughs on both PSTs were open and clear of solids and scum.

During the inspection of PST #1, I observed that the sludge blanket appeared to be higher than observed during the last evaluation in August. There was a floating layer of sludge that had come up from the bottom of the tank. Generally, this condition can occur when there are anoxic conditions in the water due to overaged sludge causing the solids from the bottom to rise to the surface. I also observed solids discharging over the weir and flowing to the next treatment stage.

According to Payton, rainstorms since my last inspection caused the excess solids in the PST #1, which in turn caused the high sludge blanket and the high sludge blanket caused the skimmer arm to start torquing. The PST was shut down for a short period while the skimmer arm was being repaired.

The primary settling is the first stage of treatment after the removal of trash and grit in the headworks building. The PSTs are designed to settle and remove the solids or sewage sludge from the wastewater by gravity and remove the floating scum and fats oil and grease (FOG). Typically, PSTs are designed to remove a large percentage of the total suspended solids (TSS) and reduce the biochemical oxygen demand of the wastewater.

As previously reported, I observed that PSTs #8 and #11 were both operational. However, they must treat solids or sludge loads beyond their capacity. The Back River WWTP must consider this load when determining and conducting routine preventative maintenance tasks and tank cleanings.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



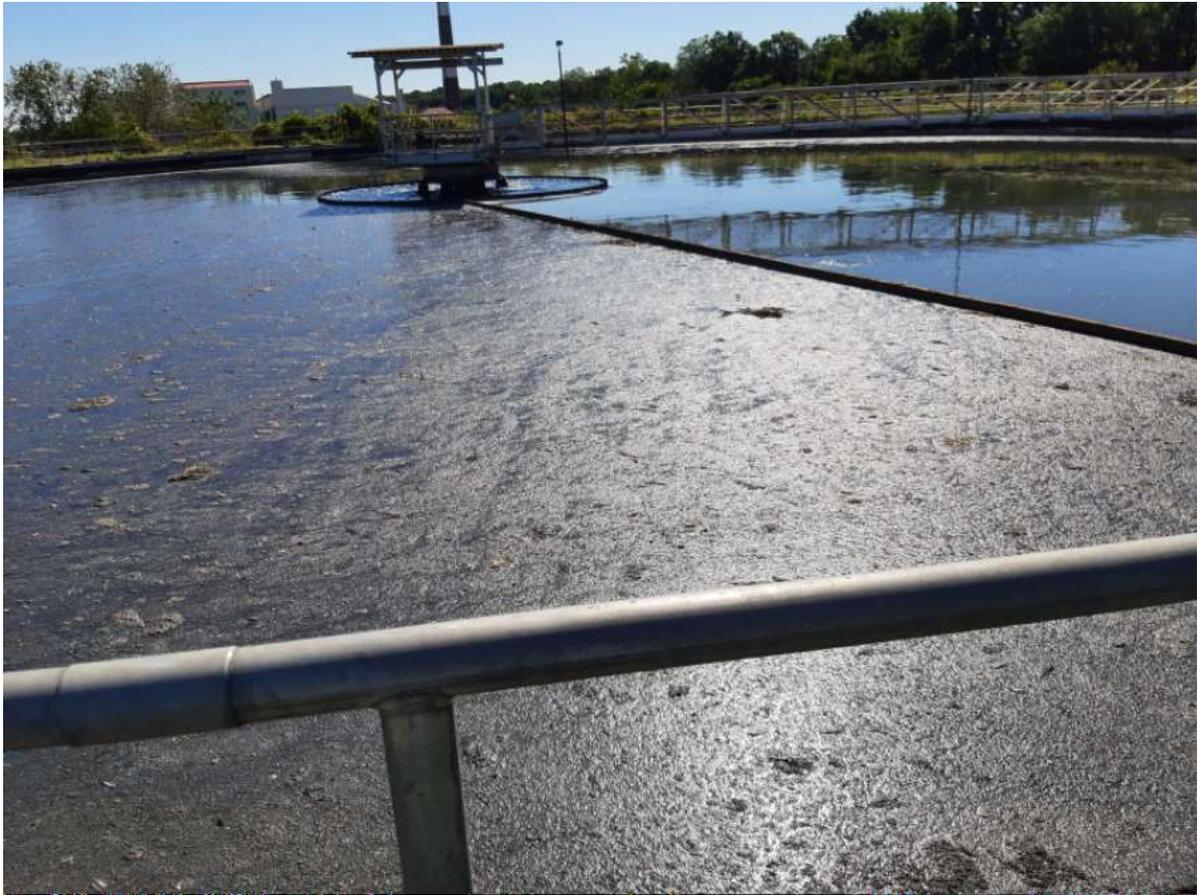
9/27/22 PST #11

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 PST #11 scum collection through the opening at the right side of the picture.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 PST #1; Note: floating solids and scum.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 PST #1; Note: Floating solids flowing into the main channel to the next treatment process.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 PST #1 floating solids.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 PST #1.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



This photograph was taken on 8/16/22 of PST #1. Provided as contrast to 9/27/22 photographs above.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 PST #7, skimmer arm being fabricated. Scheduled to be online in mid-November 2022.

Activated Sludge Plants (Biological Reactors) and Secondary Clarifiers

Next, I traveled to the next stage of treatment, Activated Sludge Plants where I met Dana Garris. After primary settling, the wastewater flows to the flow distribution building and from there, the wastewater flows to the Activated Sludge Plants #2, #3, and #4 containing a series of biological reactors for nitrogen removal. Each plant has six reactors. Activated Sludge Plants #2 and #3 have a three-pass train designated A, B, and C for each reactor and #4 is a two-pass system. Activated Sludge Plant #4 is a newly constructed addition to the secondary biological treatment. Construction was initiated during the Enhanced Nutrient Removal upgrades to the Back River WWTP covered under Contract 882 of the previous consent agreement. Activated Sludge Plant #4 was seeded in late spring 2022 and is online. During a preliminary discussion with the plant manager regarding Activated Sludge Plant #4, I was informed that a problem has developed with the waste pumps and associated equipment that is now being addressed by the manufacturer. Two of the secondary clarifiers were offline during this inspection. Each Activated Sludge Plant has six secondary clarifiers for settling and scum removal.

During the next phase of this evaluation, I inspected the Activated Sludge Plants #2 and #3. Reactor #6 was drained and offline for repairs. **The problems previously observed and reported are still an issue.** The reactor tanks require maintenance. Some of the mixers in the reactors were not functioning as designed due to rags being wound around the mixer shafts impeding operation and the many of the reactor basins need to be cleaned of solids. The computerized dissolved oxygen (DO) monitoring equipment, designed to continuously monitor the DO, is not functional.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

Due to this, the DO must be measured manually to determine if the target DO in each stage is being met. However, this is not being done to the level necessary to ensure stable DO concentrations at the target level. This process should be automated to ensure proper and stable DO levels for each reactor zone. In addition, vegetation is growing in certain areas of the reactors.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Reactor #6: Rags were wound around the mixer shafts. This condition was observed with online reactors as well.

Next, I inspected the secondary clarifiers for Activated Sludge Plants #2 and, 3#. There are a total of 24 secondary clarifiers for these plants and seven were not functioning during this site review. During this evaluation, only two of the 17 secondary clarifiers evaluated had no visible issues. The skimmer arms on several of the clarifiers were missing skimming blades for the skimmer arms. **The scum troughs on many of the clarifiers in operation were clogged, requiring routine maintenance. Due to the blockage, the skimming systems are ineffective in performing their designated function of removing FOG and other floating scum and solids.** Therefore, the majority of the secondary clarifiers cannot function as designed.

In addition, phragmites, algae, and other types of vegetation were growing around and, on the weirs, blocking flow and causing short circuiting of the weirs. This problem has been reported during previous inspections. **Therefore, most of the secondary clarifiers were not functioning as designed due to lack of routine maintenance.** Control measures should be taken to address the problem on a continuous basis by incorporating these issues in a preventive maintenance program.

Algae growth in secondary clarifiers is a common problem for all uncovered weirs on secondary clarifiers. It requires regular measures to keep the problem under control. Algae can cause problems with TSS within the treatment system and can cause problems with pumps by increasing the chances of clogging. The weirs on all secondary clarifies should be routinely scrubbed to remove the algae or other control measures as deemed necessary.

Staff and management at Back River WWTP have told me that there is not sufficient staff to perform all required maintenance. The above conditions indicate that the Back River WWTP is not complying with General Conditions B3 of the permit.

Table 1 below describes the condition of each clarifier and whether it is being used for wastewater treatment (in service).

Table 1

Secondary Clarifier #	Condition	In service during the inspection (Y or N)
7A	This clarifier cannot function as designed because of thick vegetation growing over the weirs and the opening to the scum collection trough is blocked by vegetation	Y
5A	This clarifier cannot function as designed because the opening to the scum collection trough is blocked	Y
16A	Not in service. Requires parts	N
14 A	The water level was lowered in order to clean the draft tube. Currently on standby until the service is completed.	N
10A	This clarifier cannot function as designed because there was algae, phragmites and other vegetation growing on the weirs and the opening to the scum collection trough is blocked	Y
8A	This clarifier cannot function as designed because the opening to the scum collection trough is blocked	

Inspection Date: September 27, 2022
 Site Name: Back River WWTP
 Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

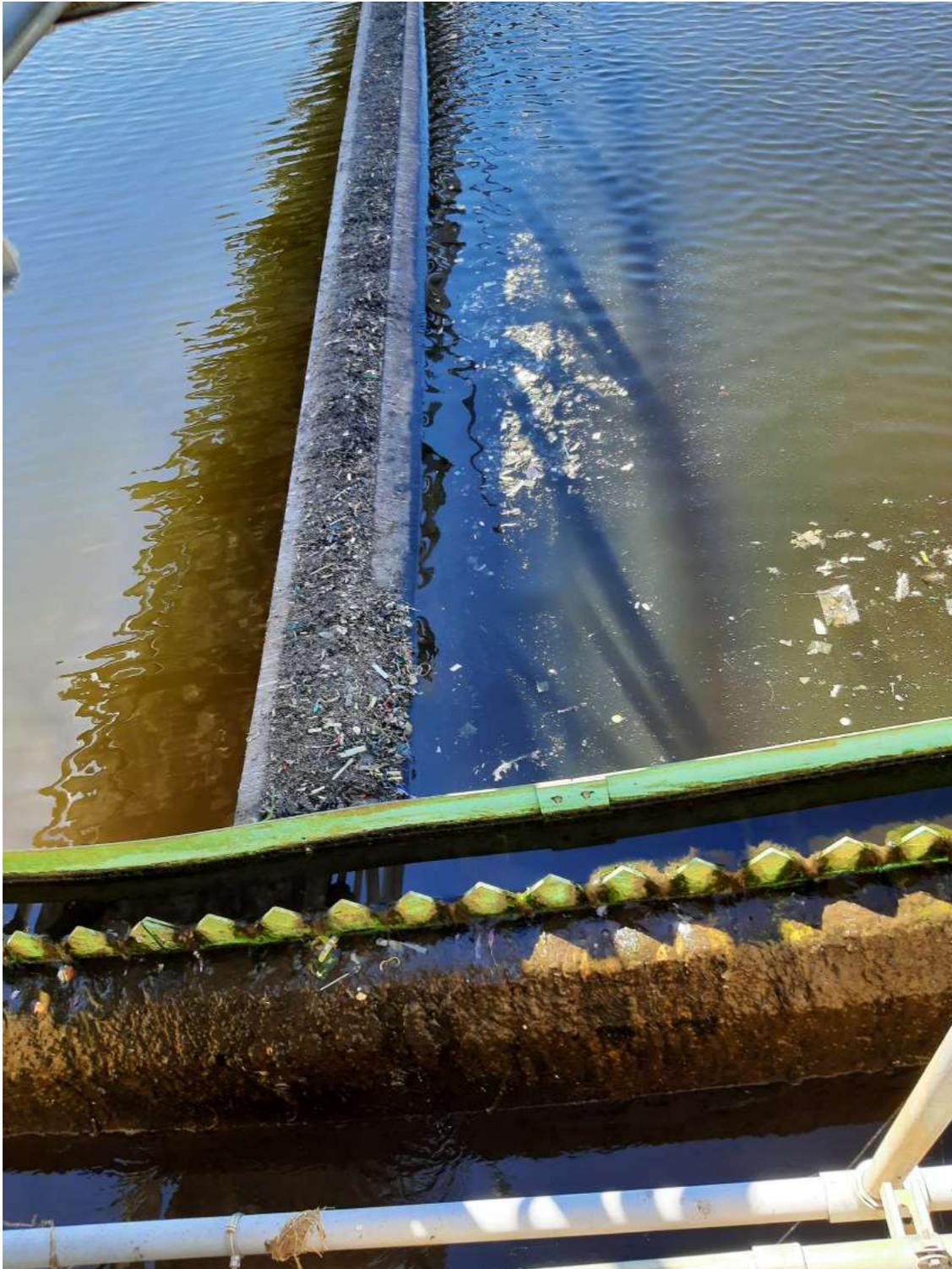
14B	This clarifier cannot function as designed because the scraper on the skimmer arm was missing. Therefore, the scum collection is not functioning as designed.	Y
16B	Not in service.	N
15A	Down for service	N
15B	This clarifier cannot function as designed because the scraper on the skimmer arm was missing. Therefore, the scum collection is not functioning.	Y
12A	This clarifier cannot function as designed because of algae and thick vegetation growing over the weirs and floating vegetation on the water surface.	Y
12B	This clarifier was down for service. No information available at the time of the inspection.	N
11B	This clarifier cannot function as designed because of algae and thick vegetation growing over the weirs.	Y
13B	No visible problems with this clarifier	Y
9A	This clarifier cannot function as designed because of algae and thick vegetation growing over the weirs.	Y
10B	This clarifier was down for service. No information available at the time of the inspection.	Y
8B	This clarifier cannot function as designed because of thick vegetation growing over the weirs and the opening to the scum collection trough is blocked.	Y
9B	This clarifier is not functioning due to inoperable pumps.	N
7B	This clarifier cannot function as designed because of thick vegetation growing over the weirs and the opening to the scum collection trough is blocked by vegetation	Y
5B	This clarifier cannot function as designed because of thick vegetation growing over the weirs and the opening to the scum collection trough is clogged.	Y
6B	This clarifier is out of service. It is scheduled to be drained shortly in order to perform the maintenance.	N
6A	Out of service for maintenance	N
11A	No major issue at this clarifier	Y
13 A	This clarifier cannot function as designed because of algal growth on the weirs, duckweed and occasional grass growing at the weirs	Y

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier #7A – Vegetation growing over the weirs and adjacent scum collection trough clogged with solids and submerged vegetation.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 5A – Scum collection trough clogged with solids.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 16A being drained to prepare for maintenance.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 10A - Phragmites growing on weirs and inside launders.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 10A scum collection trough opening clogged and vegetation growing on the weirs.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Another view of secondary clarifier 10A.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 11 A – No visible problems with this clarifier.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 8A scum trough clogged. The clarifier is not being operated as designed.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 15B – There is no blade or flapper on the outer part of the skimmer arm to collect floating solids and scum.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 12A- Algae growing on weirs along with vegetation.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 12B down for repairs.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 11B – Algae, duck weed and vegetation growing on the weirs.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 9A – vegetation covering the weirs along the perimeter of the clarifier.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 9A – vegetation growing on and covering the weirs along the perimeter of the clarifier,



9/27/22 Secondary clarifier 8B – vegetation growing on the weirs and the scum trough is clogged.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 7B – Thick vegetation growing around the weirs and blocking the flow.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



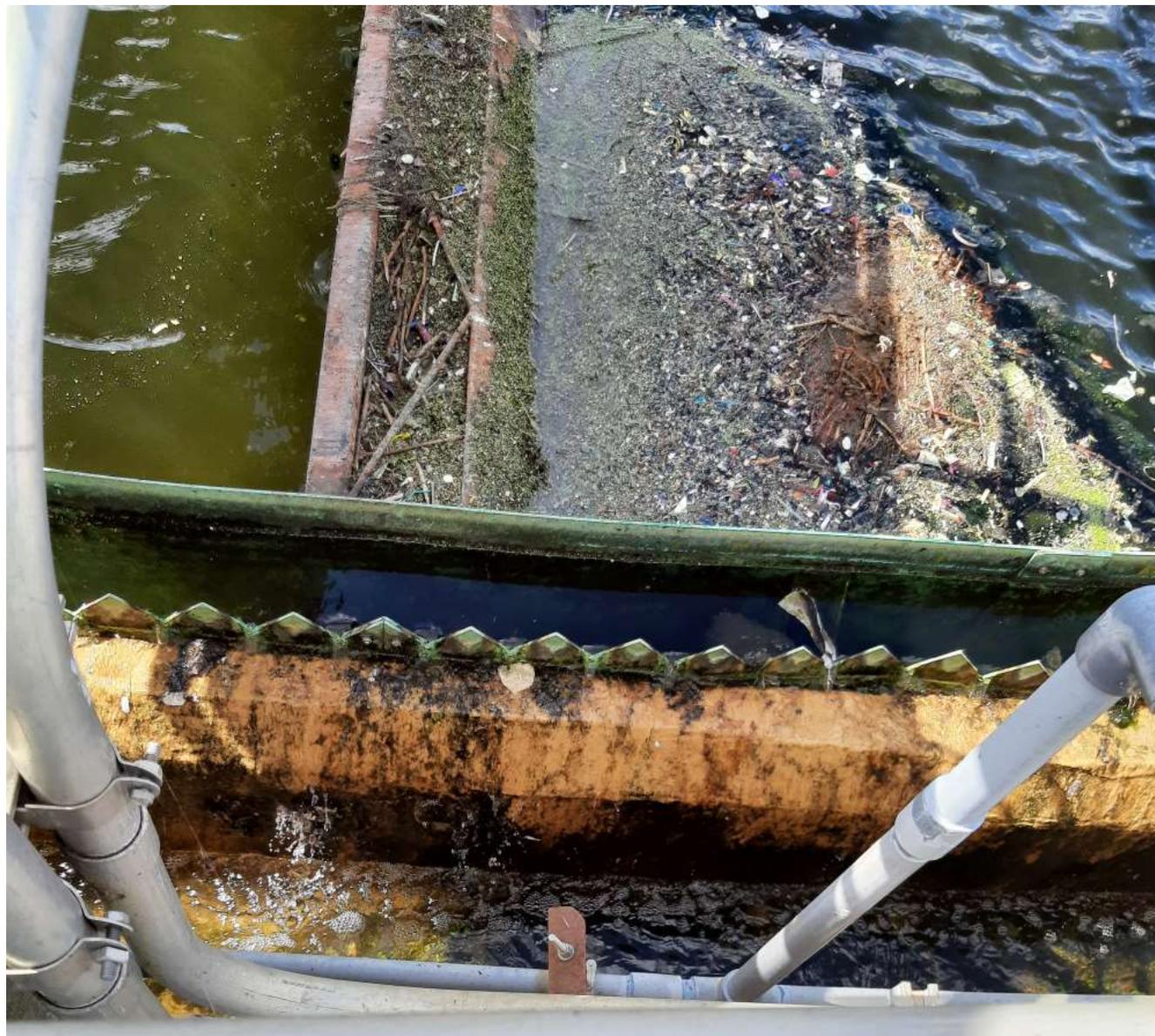
9/27/22 Secondary clarifier 7B - Vegetation growing on the weirs and the scum trough is clogged.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 7B - Vegetation growing on the weirs hindering operational performance.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Secondary clarifier 5B - Scum collection trough clogged preventing the removal of scum and floating solids.

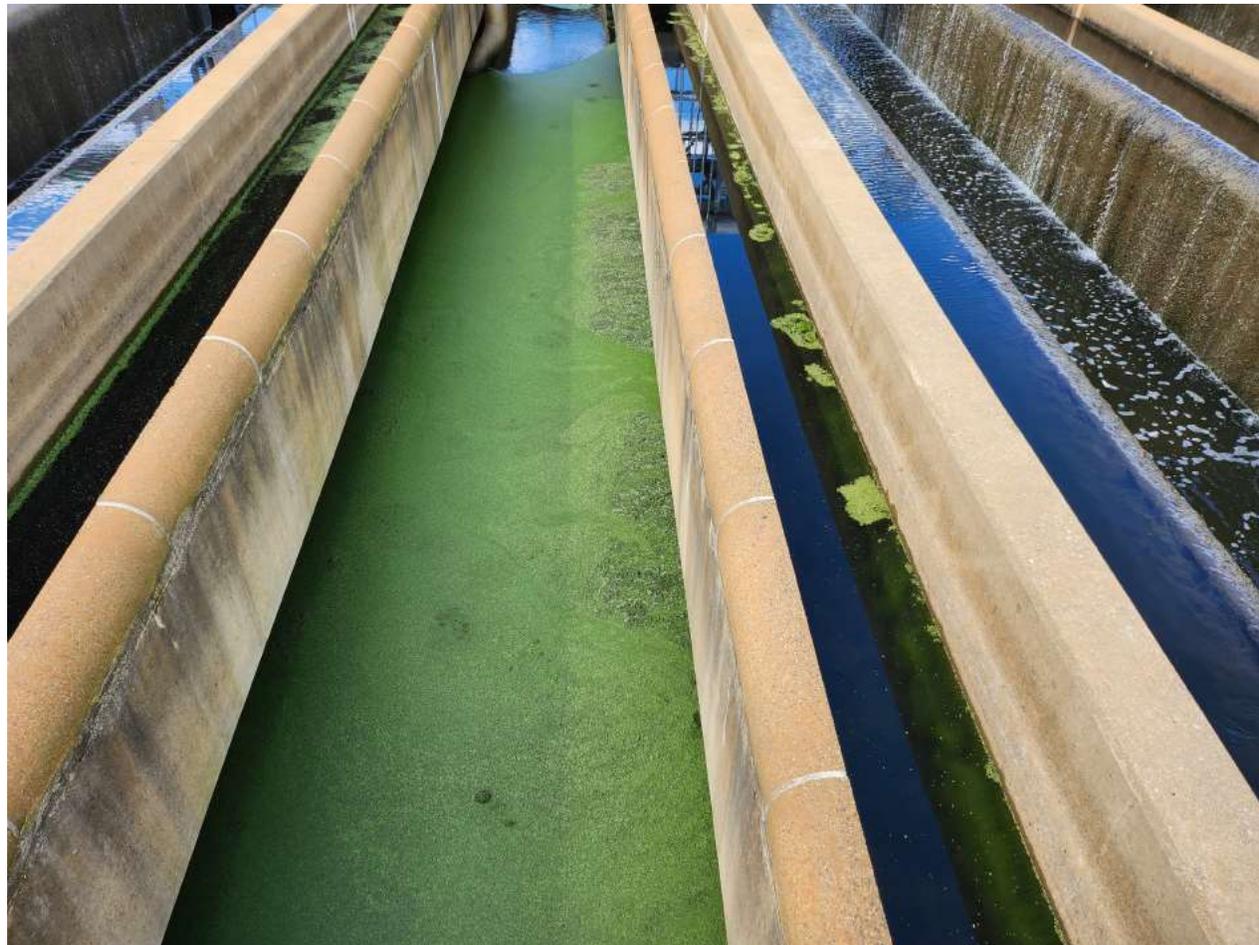
DNF

The next step in the site review was at the DNF building. The DNF are being maintained by ProStart. Baltimore City has a contract with ProStart to operate and maintain the DNF system. There are four filter quads, and each quad contains 13 Tetra Denitrification Filters with 52 total filters. When I arrived, I went directly to the control room to discuss the operation with the ProStart control room operator. I asked the operator if there were any problems and the number of filters that were active. I was told that there were no problems, and all 52 filters were online.

During an inspection of the four filter quads, I found that one of the filters was not active. This filter appeared to have been out of service for a while due to the undisturbed top layer of floating algae and floating duckweed. I went back to the control room to speak with the control room

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

operator. However, the operator was no longer in the control room. I then inspected the remaining filters and observed no other visible issues. Based on my observations, 51 of the filters were online. The filters were in better condition than observed during my 8/16/22 inspection, where I found problems with the operation of many of the filters.



9/27/22 Inactive DNF.

Sand Filters

Next, I inspected the sand filters. During the MDE, MES, and DPW meeting on the previous day, MES reported that 25 of the 48 sand filters are functioning. In addition, parts are on order for repairs. During this inspection, MES was performing preventive maintenance and repairs to the sand filters and conducting evaluations on inactive sand filters to determine types of repair work needed to get the filters back in service.

CCC

We then traveled to the CCC. The Back River WWTP installed floating booms upstream of the final overflow at the request of the Department to prevent floating scum and solids from discharging. **There was no evidence of floating material breaching the final booms during this evaluation.**

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 One of the floating booms at the left channel CCC being used to prevent floating solids from entering the final discharge canal.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Operator skimming floating solids and scum at the right channel CCC.

Next, I inspected the final effluent at the step aeration system and at the sampling station. I found the final effluent to be clear with a slight gray tint and no visible suspended or floating particulates. During a review of the effluent monitoring equipment, I observed that the automatic sampler was being defrosted due to a buildup of ice on the internal refrigeration compartment. Therefore, the facility is collecting individual grab samples and compositing into a single container for today's composite sampling event.

During an inspection of the automatic sampler, I observed that the sample collection trough needs to be cleaned. The compartment should be cleaned with detergent (phosphate-free detergent like Liquinox or Luminox) and using a brush to remove particulate matter and surface film, then rinsed with water, and finally, rinsed with a Polychlorinated Biphenyls free solvent like methanol rinsed before use.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



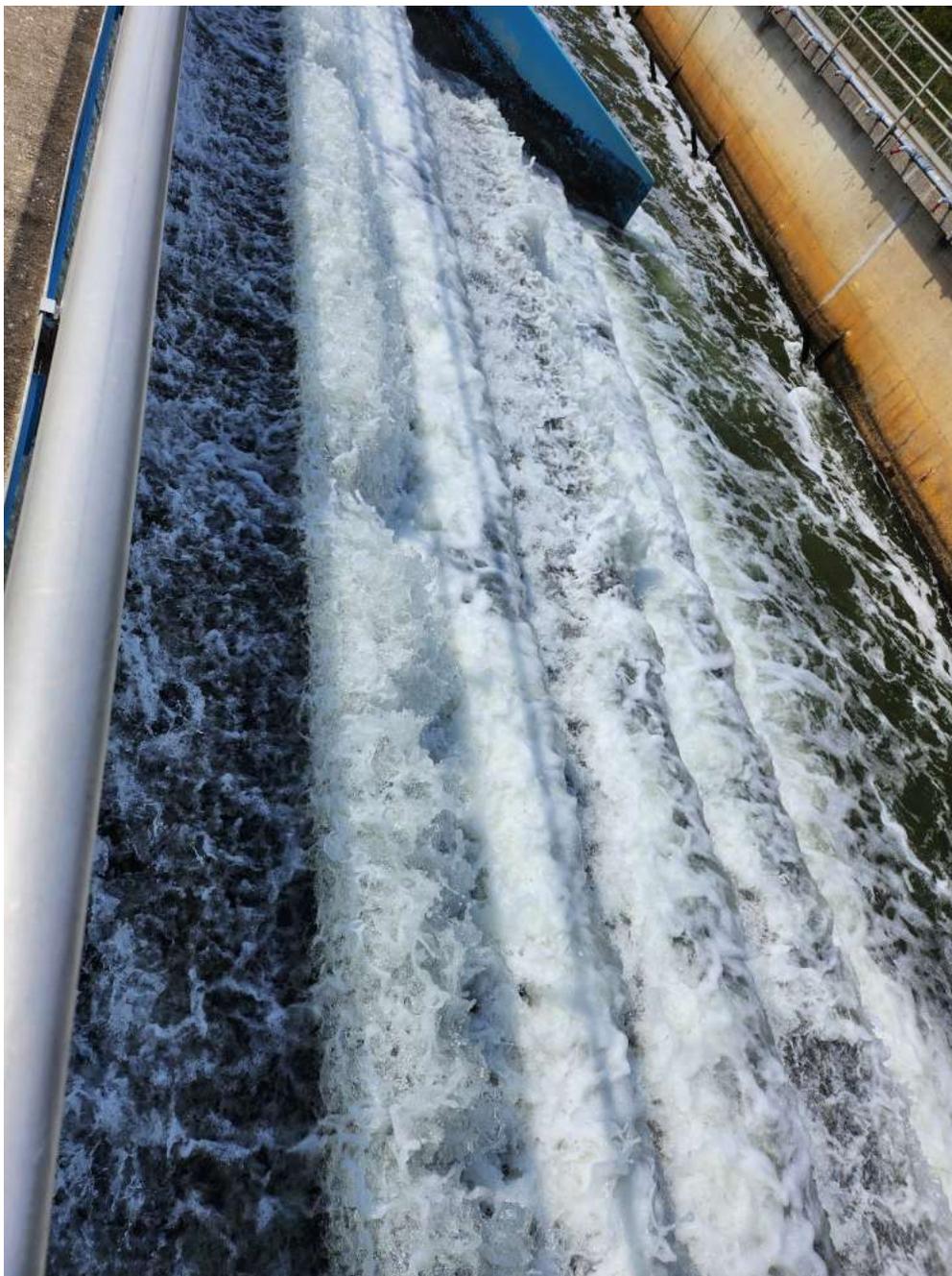
9/27/22 Automatic sampler being defrosted.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Sample collection trough in unsatisfactory condition. The trough should be cleaned per instructions above.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224



9/27/22 Final effluent at step aeration system.

Staffing

My observations during the inspection site reviews, along with my conversations with management and operating staff, point out that the Back River WWTP has a major problem maintaining equipment and adequately controlling processes caused by a shortage of qualified staff. This is a violation of General Condition B 3b of the NPDES permit, which requires the Back River WWTP to provide an adequate operating staff qualified to carry out operation, maintenance, and testing functions required to ensure compliance with the permit.

Due to the lack of qualified staff and unsatisfactory preventative maintenance practices, there is a greater potential for operational problems that could affect human health and the environment. Only well-trained, dedicated plant operators can be expected to perform adequate physical inspections, repairs, and preventative maintenance. The Back River WWTP should ensure that all staff are adequately trained and committed to the satisfactory operations of the treatment plant.

Optimal maintenance activities at the Back River WWTP can be multifaceted and require a variety of operator skills to be effective. Operators must have the technical expertise or the ability to operate and maintain advanced supervisory control and data acquisition (SCADA) systems and complex mechanical systems as the plant begins to return to full automation. **Therefore, adequate staff and ongoing staff training are necessary.** There has not been adequate long-term planning for staff replacement and system upgrades and changes at the Back River WWTP. Many of the skills necessary for routine and preventative maintenance at the site are not readily available. Skills to perform many tasks require training that goes beyond the routine wastewater apprenticeship training programs.

Due to the size and process intricacies of the treatment works, formal written maintenance policies and procedures are necessary to operate the Back River WWTP effectively. There must be available printed operating procedures, manufacturers guidelines, and standard reference texts to enable the operation staff to achieve efficient plant operation. There should be written staffing plans, crew assignments, and schedules for the daily operations as well.

To ensure that current staff are used effectively to support plant activities, a formal set of policies must be used for operations of the WWTP. These policies should include or address:

- Permit compliance;
- Maintaining process controls and understanding process control systems like SCADA;
- Proper calibration and maintenance of monitoring equipment used for process control and permit monitoring requirements; and
- Preventive and routine maintenance.

The Back River WWTP does not have an updated Operations and Maintenance Manual. The permittee shall develop an updated Operations and Maintenance Manual taking into consideration at minimum the following areas of concern:

1. Emergency Situations;
2. Energy conservation;
3. Equipment record system;
4. Inventory management;
5. Hydraulic overloads
6. Staff scheduling
7. Laboratory contracts and deliverables
8. Permit requirements
9. Preventative maintenance planning
10. Process control
11. Pumping stations
12. Safety

13. Sludge disposal
14. Staff training
15. Treatment chemical supply
16. Treatment process

The following violations were observed under Environment Article Title 9 for the Back River WWTP:

1. Crucial equipment maintenance and repairs are not being performed by the Back River WWTP at the level necessary to efficiently operate and maintain the treatment works. The Back River WWTP has failed to provide enough qualified staff to adequately operate and maintain the WWTP. This is a violation of General Condition B3b of the NPDES permit. To ensure that the staff is used effectively to support plant activities, a formal set of policies must be used for operations of the WWTP.
2. Algae and vegetation were observed on and around the weirs of the secondary clarifiers that is causing the short circuiting of the system. This condition can impact downstream equipment and treatment processes.
3. The automatic sampler is not being maintained properly. The sampler should be decontaminated to prevent sample contamination.
4. The Back River WWTP has not provided adequate records and monitoring data to confirm satisfactory air quality at the headworks building.
5. The skimmer blades on some of the secondary clarifiers are missing and require maintenance and the scum troughs on many of the secondary clarifiers require maintenance.
6. Considering changes to the treatment, operational changes, equipment failures and effluent violations, the site requires an updated Operations and Maintenance Manual.

To bring this site into compliance with Environment Article Title 9, the Back River WWTP shall make the following corrections:

- A. With respect to item #1 above, the Back River WWTP shall immediately comply with the requirements under General Condition B3 and adequately operate and maintain the treatment works. Within 30 days of the receipt of this report, the Back River WWTP shall provide the following information to the Department:
 - How staffing needs, submitted in a report to the Department earlier this year, were determined? Please include information on guidelines used, how they were applied, other factors and considerations that apply, and worksheets used for each process.

Inspection Date: September 27, 2022
Site Name: Back River WWTP
Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

- Submit an updated report on staffing needs and provide an update every 30 days.
 - Are line supervisors included in manpower scheduling? Provide a list of their responsibilities in each process.
 - How does each process determine operating schedules?
 - Are schedules designed to attain the most efficient staff utilization? If so, what steps are taken to achieve this goal?
 - Submit a copy of program details for current plans for obtaining adequate qualified staff and for ongoing staff training.
 - Submit a copy of the Back River WWTP's Maintenance Policies and Procedures.
- B.** With respect to item #2 above, the weirs on the secondary clarifiers shall be routinely inspected and scrubbed as necessary to prevent aggressive algae growth. Within 30 days of the receipt of this report, all vegetation shall be removed from the secondary clarifiers and routine maintenance shall be performed to prevent the recurrence of the problem. Once completed, the Back River WWTP shall notify the Department.
- C.** With respect to item #3 above, the Back River WWTP shall immediately maintain the automatic sampler in satisfactory condition. The sampler should be decontaminated and routinely cleaned to prevent sample contamination during use.
- D.** With respect to item #4 above, within 15 days of the receipt of this report, the Back River WWTP shall provide to the Department data such as H₂S air monitoring data, work orders or other maintenance records to confirm satisfactory air quality, and the efficacy of the ventilation and air scrubber systems at the headworks building.
- E.** With respect to item #5 above, within 30 days of the receipt of this report, the Back River WWTP shall repair the skimmer arms on the secondary clarifiers and pump out the scum troughs on the secondary clarifiers. The Back River WWTP shall notify the Department once these tasks have been completed.
- F.** With respect to item #6 above, within 30 days of the receipt of this report, the permittee shall develop and submit an updated Operations and Maintenance Manual taking into consideration the items listed under staffing on pages 48 and 49 of this report.

STATE LAW PROVIDES FOR PENALTIES FOR VIOLATIONS OF MARYLAND ENVIRONMENT ARTICLE TITLE 9 FOR EACH DAY THE VIOLATION CONTINUES. THE DEPARTMENT MAY SEEK PENALTIES FOR THE AFOREMENTIONED VIOLATIONS OF TITLE 9 ON THIS SITE FOR EACH DAY THE VIOLATION CONTINUES.

Inspection Date: September 27, 2022
 Site Name: Back River WWTP
 Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

NPDES Municipal Major Surface Water - Inspection Checklist

Inspection Item	Status	Comments
Does the facility have a discharge permit?	No Violations Observed	
Is the discharge permit current?	No Violations Observed	
If the permit is not current, has facility applied for renewal?	No Violations Observed	
Does the facility operate as authorized by their current permit?	Out of Compliance	Failed to comply with General Condition B3
Has the permittee exceeded the permitted capacity of the WWTP?	No Violations Observed	
Is the number and location of discharge points as described in the discharge permit?	No Violations Observed	
Has permittee submitted correct name and address of receiving waters?	No Violations Observed	
Is the permittee meeting the compliance schedule per permit requirements?	2 - Not Applicable	
Has the operator or superintendent been certified by the Board in the appropriate classification for the facility?	No Violations Observed	Certification of all operators were not checked only operators interviewed during this evaluation
Are adequate records being maintained for the sampling date, time, and exact location; analysis dates and times; individual performing analysis; and analytical results?	4 - Not Evaluated	
Are adequate records being maintained for the analytical methods/techniques used?	4 - Not Evaluated	
Does the permittee retained a minimum of 3 years' worth of monitoring records including raw data and original strip chart recordings; calibration and maintenance records; and reports?	4 - Not Evaluated	
Do lab records reflect that lab and monitoring equipment are being properly calibrated and maintained?	4 - Not Evaluated	
Does the permittee/laboratory use suitable QA/QC procedures and operate a formal quality assurance (QA) program using appropriate controls?	4 - Not Evaluated	
Has the permittee submitted the monitoring results on the proper Discharge Monitoring Report form?	No Violations Observed	
Do the Discharge Monitoring Reports reflect permit conditions?	No Violations Observed	
Has the permittee submitted these results within the allotted time electronically?	No Violations Observed	
Is the facility being properly operated and maintained including:(a) stand-by power or equivalent provisions available, (b) adequate alarm system for power or equipment failure available, (c) all treatment units are in service.	Out of Compliance	Failed to comply with General Condition B
Is sewage sludge managed correctly per permit requirements?	No Violations Observed	
If a by-pass occurred since last inspection, has the permittee submitted notice of the by-pass within the allotted time?	No Violations Observed	

Inspection Date: September 27, 2022
 Site Name: Back River WWTP
 Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

NPDES Municipal Major Surface Water - Inspection Checklist

Inspection Item	Status	Comments
If a non-complying discharge occurred since the last inspection, was the regulatory agency notified within the allotted time?	No Violations Observed	
If applicable, has the permittee complied with all special conditions of their permit?	Out of Compliance	Failed to comply with General Condition B3 Special Condition A2 including footnote 4
Have overflows occurred since the last inspection?	No Violations Observed	
Have records of overflows been maintained at the facility for at least five years?	No Violations Observed	
Are flow measuring devices properly installed and operated, calibration frequency of flow meter adequate, flow measurement equipment adequate to handle expected ranges of flow?	No Violations Observed	
Are discharge monitoring points adequate for representative sampling?	No Violations Observed	
Do parameters and sampling frequency meet the minimum requirements?	No Violations Observed	
Does the permittee use the method of sample collection required by the permit?	No Violations Observed	
Are analytical testing procedures used approved by EPA?	4 - Not Evaluated	
If alternate analytical procedures are being used, has proper approval been obtained?	4 - Not Evaluated	
Has the permittee notified the Department of the name and address of the commercial laboratory?	No Violations Observed	
Were discharges observed at the authorized outfalls?	No Violations Observed	
If discharges were observed, do the discharges or receiving waters have any visible pollutants observed?	No Violations Observed	
Were discharge samples collected?	4 - Not Evaluated	
Does this facility have coverage under a NPDES stormwater discharge permit?	No Violations Observed	
If the permittee has coverage under a NPDES storm water permit, has a stormwater pollution prevention plan been developed and implemented as required?	4 - Not Evaluated	
Are the permit conditions being met?	Out of Compliance	

Inspector: **Ronald Wicks** 10/21/22
 Ron Wicks /Date
 ron.wicks@maryland.gov
 410-537-3510

Received by: _____
 Signature/Date

 Print Name

Inspection Date: September 27, 2022
 Site Name: Back River WWTP
 Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

Inspection Date: September 27, 2022
 Site Name: Back River WWTP
 Facility Address: 8201 Eastern Ave, Baltimore, MD 21224

NPDES Municipal Major Surface Water - Inspection Checklist

Inspection Item	Status	Comments
If a non-complying discharge occurred since the last inspection, was the regulatory agency notified within the allotted time?	No Violations Observed	
If applicable, has the permittee complied with all special conditions of their permit?	Out of Compliance	Failed to comply with General Condition B3 Special Condition A2 including footnote 4
Have overflows occurred since the last inspection?	No Violations Observed	
Have records of overflows been maintained at the facility for at least five years?	No Violations Observed	
Are flow measuring devices properly installed and operated, calibration frequency of flow meter adequate, flow measurement equipment adequate to handle expected ranges of flow?	No Violations Observed	
Are discharge monitoring points adequate for representative sampling?	No Violations Observed	
Do parameters and sampling frequency meet the minimum requirements?	No Violations Observed	
Does the permittee use the method of sample collection required by the permit?	No Violations Observed	
Are analytical testing procedures used approved by EPA?	4 - Not Evaluated	
If alternate analytical procedures are being used, has proper approval been obtained?	4 - Not Evaluated	
Has the permittee notified the Department of the name and address of the commercial laboratory?	No Violations Observed	
Were discharges observed at the authorized outfalls?	No Violations Observed	
If discharges were observed, do the discharges or receiving waters have any visible pollutants observed?	No Violations Observed	
Were discharge samples collected?	4 - Not Evaluated	
Does this facility have coverage under a NPDES stormwater discharge permit?	No Violations Observed	
If the permittee has coverage under a NPDES storm water permit, has a stormwater pollution prevention plan been developed and implemented as required?	4 - Not Evaluated	
Are the permit conditions being met?	Out of Compliance	

Inspector: *Ronald Wicks* 10/21/22
 Ron Wicks /Date
 ron.wicks@maryland.gov
 410-537-3510

Received by: 
 Signature/Date

 Print Name